# Navy Advancement Center Web site: http://www.cnet.navy.mil/netpdtc/nac/neas.htm

## **Advancement Handbook** for Illustrator **Draftsman (DM)**

#### **PREFACE**

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Illustrator Draftsman (DM) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are <u>cumulative</u>; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the "Exam Expectations" section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

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#### Part 1

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw freehand sketches
Knowledge you should have to perform this skill:	Define:      Thumbnail sketching     Perspective Recall how to:     Draw thumbnail sketches     Place dominate and subordinate objects     Determine tonal/color balance     Direct attention using compositional elements     Select appropriate media
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1, 2, and 5</li> <li>DM Volume 3, Chapters 1, 2, and 3</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on static and dynamic composition, ratios, balance, symmetry, contrast, line resolutions, tone, color, and perspective. Also, drawing techniques such as contour drawing, compositional drawing, and basic shapes.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select clip art
Knowledge you should have to perform this skill:	Define     Clip art     Picture morgue Recall how to     Identify clip art     Recognize copyrighted art     Annotate copyrighted art     Request permission to use copyrighted art
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5870.5</li> <li>SECNAVINST 5870.6</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purpose of clip art, sources of clip art, extracting and identifying clip art images, identifying copyrighted art, annotating copyrighted art, obtaining permission for using copyrighted art, procedures for using copyrighted art, and filing clip art.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create original cartoon figures
Knowledge you should have to perform this skill:	<ul> <li>Recall how to:</li> <li>Identify emotive gestures, facial features, and body language</li> <li>Exaggerate stereotypical features</li> <li>Personify animal figures</li> <li>Identify and position props</li> <li>Use various media</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1 through 5</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the purpose of cartooning, elementary construction, incidental construction, action lines, establishing direct relationships between cartoon figures and viewers, identifying semi-realistic, exaggerated cartoons, and caricatures, and selecting and placing props.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Construct backgrounds
Knowledge you should have to perform this skill:	Define:     Props     Settings Recall how to:     Use basic drafting and drawing tools     Create and place pertinent background objects     Identify distracters     Eliminate distracters or unwanted elements through selective cropping, airpainting, silhouetting, or vignetting
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 2, 4, 6, and 7</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on directional lines, balance, background clutter, simplicity, clarity, relevancy, the effects of distance on detail and tone, the theory of aerial perspective, silhouetting, vignetting, cropping, airpainting, or eliminating backgrounds.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw human figures
Knowledge you should have to perform this skill:	<ul> <li>Define foreshortening</li> <li>Recall how to: <ul> <li>Reduce figures to basic shapes</li> <li>Draw human figures using the contour method</li> <li>Draw figures using the composite method</li> <li>Draw human figures in proportion</li> <li>Place facial features accurately</li> <li>Identify bone structure and musculature</li> <li>Draw articles of clothing on male and female figures</li> <li>Use basic drafting and drawing tools</li> <li>Select appropriate media</li> </ul> </li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 2, Chapter 5</li> <li>DM Volume 3, Chapter 3</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on male and female figure proportions, ratios of body parts, progressive proportions for child through adult human figures, drawing hands and feet, body language, facial features and feature placement, foreshortening, dressing the figure, tension folds and stress points on garments worn by figures and figures in motion, drawing figures through composite drawings and contour techniques, reducing the figure to basic shapes, and drawing dynamic figures.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Add backgrounds and props to figure illustrations
Knowledge you should have to perform this skill:	<ul> <li>Recall how to:</li> <li>Identify background or props relevant to the action of the figures in the composition</li> <li>Place props subordinate to central figures</li> <li>Eliminate or reduce distracters from backgrounds</li> <li>Use drafting and drawing tools</li> <li>Select appropriate media</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 3 and 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the placement of background or subordinate information, the placement of relevant props, the importance of props to the figures, the effects of distance on color, detail, and tone, altering backgrounds by cropping, silhouetting, vignetting, or elimination by airpainting.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Locate figures within compositions
Knowledge you should have to perform this skill:	Recall how to:      Create thumbnail sketches     Draw human and cartoon figures     Create backgrounds
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 3 and 5</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on dominate and subordinate object /figure locations, directional movement, composition, and implied relationships between figures and viewers.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create pen and ink drawings
Knowledge you should have to perform this skill:	Identify procedures for  • Selecting and preparing substrate surfaces  • Selecting nib sizes and style  • Filling pen nibs and reservoir pens  • Use basic drafting and drawing tools  • Cleaning pen nibs and reservoir pens  • The order of inking  • Crosshatch techniques  • Tonal representation
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1, 3, 4, and 5</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on creating line drawings, tonal representations, crosshatching and stipple, selecting substrates, selecting pen nibs, cleaning pen nibs, lettering nibs, ink characteristics, line resolutions, and the effects of enlarging or reducing line art.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create pencil drawings
Knowledge you should have to perform this skill:	Identify procedures for  Preparing thumbnail sketches  Sharpening pencil leads  Selecting appropriate substrates  Use basic drafting and drawing tools  Creating tonal representations  Selecting correct eraser grades  Preserving pencil drawings  Reproducing pencil drawings
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 2</li> <li>DM Volume 3, Chapters 1,3, 4, and 5</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on composition, formal and informal balance, substrate characteristics, lead characteristics, sharpening leads, appropriate lead shapes, tonal representation, eraser characteristics, drawing aids, drawing techniques, fixatives, and reproducing graphite illustrations.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create pastel drawings
Knowledge you should have to perform this skill:	<ul> <li>Identify procedures for</li> <li>Drawing thumbnail sketches</li> <li>Selecting a color scheme</li> <li>Drawing figures, objects, and backgrounds</li> <li>Selecting pastels</li> <li>Selecting and prepare an appropriate substrate</li> <li>Rendering pastel techniques</li> <li>Preserving pastel drawings</li> <li>Storing pastel drawings</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 1, 2, and 3</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on pastel characteristics, fixatives, blending tools, erasing techniques, color selection, and substrate selection, preparation, and storage.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create charcoal drawings
Knowledge you should have to perform this skill:	<ul> <li>Identify procedures for</li> <li>Creating thumbnail sketches</li> <li>Drawing human and cartoon figures, objects, and backgrounds</li> <li>Selecting appropriate substrates</li> <li>Rendering charcoal techniques</li> <li>Using blending techniques</li> <li>Preserving charcoal drawings</li> <li>Storing charcoal drawings</li> <li>Reproducing charcoal drawings</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 2 and 5</li> <li>DM Volume 3, Chapters 1, and 3</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on selecting appropriate substrates, charcoal characteristics, blending techniques, preservation, storage, and reproduction.

General DM Skill Area	Illustrations and mediums
A skill you are expected to perform from the General Skill Area above:	Select color scheme for illustrations
Knowledge you should have to perform this skill:	Define:  Light characteristics Color characteristics: Harmonies Discords Luster Luminosity Iridescence Low and high key characteristics Warm and cold characteristics Aerial perspective The additive theory of color The subtractive theory of color: Achromatic color Monochromatic color Complimentary color Split compliments Triads Process color: Pantone color CYMK Flat color Duotones Spot color Fake color Electronic color Desktop color Primary, secondary, and tertiary colors Local color

	Recall how to:      Create thumbnail sketches     Interpret color schemes as tonal gradations     Create emotive effects     Represent highlights     Mix color pigments
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 3</li> <li>DM Volume 3, Chapter 2</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the theory of light, the different color theories, color relationships, high- and low- key color characteristics, warm and cool color characteristics, color scanning, grey scale scanning, tonal interpretations, color printing, color mixing, and the use of color in compositions and for effect.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create, mount, catalog, and file viewgraphs
Knowledge you should have to perform this skill:	<ul> <li>Pefine:</li> <li>Polarized light</li> <li>Progressive disclosure</li> <li>Recall how to:</li> <li>Prepare original line or halftone master art</li> <li>Reduce or enlarge master art photographically</li> <li>Reproduce master art by using:         <ul> <li>The diazo process</li> <li>Computer-generated imagery</li> <li>A process camera</li> <li>Markers</li> </ul> </li> <li>Proportion art for dual reproduction as a viewgraph or slide</li> <li>Mount foils singly or in multiples</li> <li>Mount foils for progressive disclosure</li> <li>Use progressive disclosure techniques</li> <li>Mark unclassified and classified viewgraphs</li> <li>Mark viewgraphs with appropriate file numbers</li> <li>Catalog viewgraphs</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 1 through 5</li> <li>DM Volume 2, Chapters 1, 2, and 5</li> <li>DM Volume 3, Chapters 1 through 8</li> <li>DM Volume 4, Chapters 2, and 3</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5290.1</li> </ul>

	<ul> <li>SECNAVINST 5870.5</li> <li>SECNAVINST 5870.6</li> <li>SECNAVINST 5510.30A</li> <li>SECNAVINST 5510.36</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on preparing original line or halftone art for reproduction using a diazo or thermal process, using computer-generated imagery, or using a process camera for enlargement or reduction.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Mount, catalog, and file 35mm slides and assemble 35mm slides into trays or carousels
Knowledge you should have to perform this skill:	Define thumbspots Recall how to:  Proportion artwork for slide reproduction Reproduce 35mm slides Mount 35mm film into slide mounts Mark slide mounts Assign file numbers to slide mounts Assemble and mark slides with thumbspots Load slides into trays or carousels for rear screen projection Load slides into trays or carousels for front screen projection
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 3, 4, and 5</li> <li>DM Volume 3, Chapter 7</li> <li>DM Volume 4, Chapters 2 and 3</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5510.30</li> <li>SECNAVINST 5510.36</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on image ratios, converting art from viewgraphs and television cards to 35mm slides; mounting film in cardboard, plastic, or glass mounts; marking mounts with classification data, assigning file numbers to slides, defining thumbspots, placing thumbspots on mounts intended for front or rear screen projection, and loading slides into trays or carousels for front or rear screen projection.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Mat and mount photographs
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Proportional scale</li> <li>Archival characteristics</li> <li>Recall how to:</li> <li>Crop and scale photographs</li> <li>Use wet and dry, hot and cold adhesive techniques to mount photographs to substrates</li> <li>Proportionally determine the dimensions for a standard mat</li> <li>Mount and mat photographs using archival methods</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapter 7</li> <li>DM Volume 4, Chapters 2 and 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on cropping and scaling photographs using a proportional scale or the diagonal line method, mounting photographs with wet and dry and hot and cold mounting techniques onto different types of substrates, the ratios of standard mats, and archival adhesives, mat boards, and substrates.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create, mount, catalog, and file charts and graphs
Knowledge you should have to perform this skill:	Define:  Organizational charts -Structural -Billet -Combination  Rectangular coordinate charts Flow charts Bar charts Line charts  Pie charts Recall how to:  Translate variables into linear measurements Select a scale Plot variables Reproduce charts Mount charts on substrates using a wet or dry, hot or cold mounting technique Assign file numbers to charts Mark charts with an appropriate classification marking File charts
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapters 1 and 2</li> <li>DM Volume 4, Chapter 2</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5510.30</li> <li>SECNAVINST 5510.36</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions on the purpose and function of different charts and the symbols used on charts, plotting variables on charts, determining linear values and selecting an appropriate scale, reproducing charts in color and black and white, mounting charts on substrates using wet or dry, hot or cold mounting techniques, assigning file numbers and filing charts, and marking charts with appropriate classification markings.

General DM Skill Area	Copy preparation	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare thumbnail sketches, roughs, and comprehensives	
Knowledge you should have to perform this skill:	Define:      Mechanical     Preliminary dummies     Paste-up dummies     Electronic prepress     Signatures Recall how to:     Prepare thumbnail sketches     Draw preliminary sketches     Prepare preliminary dummies     Prepare paste-up dummies     Use basic drafting and drawing tools	
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 3</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 4, Chapter 1</li> </ul>	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the purpose of thumbnail sketches both in color and in black and white, using positive and negative space, tonal representation and variation, directional line, and viewpoint. Define the different types of prepress dummies and their method of construction using copyfitting methods, copy counting, page layout, picture placement, logical sequencing, signatures, and formats.	

General DM Skill Area	Copy preparations	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Paste up mechanicals	
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Mechanicals</li> <li>Electronic prepress</li> <li>Recall how to:</li> <li>Cut and paste elements into compositions</li> <li>Use a waxer</li> <li>Layout elements into a page</li> <li>Indicate instructions to the printer</li> <li>Use proofreader and editor marks</li> <li>Prepare mechanicals using line copy</li> <li>-Prepare mechanicals using continuous tone copy</li> <li>Prepare mechanicals using combination copy</li> <li>Use basic drafting and drawing tools</li> <li>Evaluate halftones for reproduction</li> </ul>	
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 4</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 4, Chapter 1</li> </ul>	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on cutting and pasting copy into a mechanical format, filling and using a waxer, laying out elements in a composition on a page, marking mechancials and overlays with instructions to the printer, using the appropriate marks to indicate text changes, using line, continuous tone, and combination copy in mechanical layouts, and evaluating halftones for rescreening or reproduction.	

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select type faces, fonts, and sizes for text and for headlines
Knowledge you should have to perform this skill: 3	Define:
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 3, Chapter 5999</li> <li>DM Volume 4, Chapter 1</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions on the characteristics of type faces, fonts, and families, differences in pica and elite line lengths, how to determine line length to set copy, determining line height, leading, letterspacing, and word spacing, identifying letter features and assigning fonts functions based on presentation, selecting appropriate fonts for text and headlines, positioning headlines, and positioning text and headlines in justified and flush set text.

General DM Skill Area	Copy preparations	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select format and sizes of pages	
Knowledge you should have to perform this skill:	<ul> <li>Preliminary dummies</li> <li>Paste-up dummies</li> <li>Mechanicals</li> <li>Signatures</li> <li>Format ratios</li> <li>Recall how to:</li> <li>Set up preliminary and paste-up dummies</li> <li>Set up signature formats</li> <li>Select an appropriate page ratio</li> <li>Set margins based on page ratio and amount of copy</li> <li>Determine primary and subordinate text</li> <li>Copyset manuscripts to determine the number of required pages</li> </ul>	
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 3, Chapter 8</li><li>DM Volume 4, Chapter 1</li></ul>	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the definition of signature format and what constitutes a signature, the different types of page ratios and their ideal purpose, selecting margin width based on the amount of copy and the position of pages, determine primary and subordinate text, recall the methods used to emphasize or subdue importance, and copyset manuscript text to determine the amount of copy and number of pages in a document.	

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select artwork for reproduction
Knowledge you should have to perform this skill:	<ul> <li>Define: <ul> <li>Line copy</li> <li>Continuous tone</li> <li>Halftone</li> <li>Moire</li> <li>Silhouette</li> <li>Vignette</li> </ul> </li> <li>Recall how to: <ul> <li>Determine the contrast level of art or photographs intended for reproduction</li> <li>Crop or scale art or photographs</li> <li>Silhouette, vignette, or eliminate backgrounds from art or photographs</li> <li>Determine halftone screens for continuous tone artwork or photographs intended for reproduction</li> <li>Eliminate or avoid moire' from previously screened art or photographs</li> <li>Review art and photographs for classified disclosures</li> <li>Mark art and photographs with classification markings</li> <li>Review art or photographs for copyright infringements</li> <li>Request and obtain permission to use copyrighted materials</li> </ul> </li> </ul>

References you should study to gain the knowledge you need to perform this skill:

- DM Volume 1, Chapter 4
- DM Volume 3, Chapter 7
- DM Volume 4, Chapter 1
- SECNAVINST 5290.1
- SECNAVINST 5510.30
- SECNAVINST 5510.36

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions on selecting the optimum contrast in art and photographs intended for reproduction, cropping and scaling art or photographs, silhouetting, vignetting, or eliminating backgrounds in art or photographs, determining halftone screens for continuous tone masters, eliminating or reducing moire in previously screened art or photographs, review art or photographs for classified disclosures, place classification markings and art and photographs, reviewing art and photographs for copyright infringements, and obtaining permission to use copyrighted imagery.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Crop and scale artwork and photographs
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Cropping</li> <li>Scaling</li> <li>Proportional scale</li> <li>Silhouetting</li> <li>Vignetting</li> <li>Recall how to:</li> <li>Proportion artwork and photographs to fit larger or smaller spaces</li> <li>Use crop arms</li> <li>Eliminate extraneous backgrounds by selectively removing portions</li> <li>Scale art and photographs using a proportional scale</li> <li>Scale art and photographs using the diagonal line method</li> <li>Silhouette and vignette main subjects</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapters 6 and 7</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on proportion, using a proportional scale, using the diagonal line method of cropping, the differences between cropping and scaling, and silhouetting and vignetting methods.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create and produce line copy
Knowledge you should have to perform this skill:	Define:  • Line art  • Copy Recall how to:  • Create pen and ink drawings  • Use basic drafting and drawing tools  • Stipple and crosshatch  • Produce tonal variations  • Recognize contrast  • Translate tone and color into tonal percentages  • Select the appropriate photographic film type for line reproduction
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 4</li> <li>DM Volume 3, Chapters 1 and 7</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the characteristics of line art and copy, line resolution, composition, tonal rendering techniques, contrast, the effects of enlargements and reduction on tonal patterns, grey percentages, and photographic films.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Produce copies
Knowledge you should have to perform this skill:	Define: <ul> <li>Copy</li> <li>Reproduction</li> <li>Reproduction units</li> <li>Recall how to use:</li> <li>LaserJet printers</li> <li>Xerographic reproduction machines</li> <li>Thermal reproduction machines</li> <li>Diazo reproduction machines</li> <li>Process cameras</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 3, and 4</li> <li>DM Volume 3, Chapter 1</li> <li>DM Volume 4, Chapter 1</li> <li>JCP No. 26</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUBINST 5600.44</li> <li>NAVPUBINST P-2002</li> <li>SECNAVINST 5213.10</li> <li>SECNAVINST 5603.2</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the definitions of copy, reproduction, and reproduction units, using computer printer (impact, nonimpact, and laser) technologies, the theories of xerographic, thermal, and diazo reproduction methods, and using a process camera.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Make entries in printing job logs
Knowledge you should have to perform this skill:	Define:      Job logs     Reproduction logs     Economical printing logs Recall how to:     Prepare a job order     Log a job into a log     Extract information from the job log for visual information reports
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>DODINST 4000.19</li> <li>NAVPUBINST 5600.44</li> <li>DPSINST 5603.10</li> <li>NAVPUBINST P-2002</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on relationships with support shops such as the print shop or photo lab, correct and incorrect copier use, logging copier usage, extracting reproduction information for log entries, and aligning log entries to visual information reporting requirements.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update picture morgue or clip art files
Knowledge you should have to perform this skill:	Define:
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5870.5</li> <li>SECNAVINST 5870.6</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about sources of clip art, extracting and identifying clip art images, identifying copyrighted art, annotating copyrighted art, obtaining permission for using copyrighted art, procedures for using copyrighted art, and filing clip art.

General DM Skill Area	Lettering
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create freehand lettering
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Freehand lettering</li> <li>Calligraphic lettering</li> <li>Letter nomenclature</li> <li>Recall how to:</li> <li>Use pencils, pens, and brushes to the best advantage</li> <li>Use basic drafting and drawing tools</li> <li>Load and palette pens and brushes</li> <li>Create compositions using only letter forms</li> <li>Integrate letter forms into compositions</li> <li>Lay out letter guidelines</li> <li>Intentionally distort letter guidelines</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1 and 5</li> <li>DM Volume 4, Chapters 1, 2, and 3</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about faces, fonts, and families, letter metrics, letter geometry, weight, height, overall appearance, distortion, layout, guidelines, composition, and letter execution for left- and right-handed DMs.

General DM Skill Area	Lettering
A <i>skill</i> you are expected to perform from the General Skill Area above:	Letter transparencies
Knowledge you should have to perform this skill:	Define nomograph Recall:  Master construction methods for viewgraph production and reproduction  Minimum and maximum word allowance  Screen to viewer ratios for letters (nomograph)  Mediums suitable for direct lettering methods
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 1, 4, and 5</li> <li>DM Volume 3, Chapters 1 and 5</li> <li>DM Volume 4, Chapter 3</li> <li>SECNAVINST 5510.30</li> <li>SECNAVINST 5510.36</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about construction methods for viewgraph production, letter height ratios, maximum and minimum word allowance, letter/background contrasts, how to use a nomograph, and methods and mediums for direct image production.

General DM Skill Area	Lettering
A <i>skill</i> you are expected to perform from the General Skill Area above:	Engrave signs, nametags, and plaques
Knowledge you should have to perform this skill:	Define:  • Fonts  • Galley  • Jigs Recall how to:  • Set up an engraver  • Place letters in the galley  • Engrave on different substrates
References you should study to gain the knowledge you need to perform this skill:	DM Volume 1, Chapter 4
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the theory of how an engraver works, setting up an engraver, different cutting points, diamond points, placing fonts into the galley, and engraving on different substrates.

General DM Skill Area	Lettering
A <i>skill</i> you are expected to perform from the General Skill Area above:	Apply dry transfer lettering
Knowledge you should have to perform this skill:	Define:      Dry transfer     Burnisher     Pick off Recall how to:     Select dry transfer lettering     Revive the wax adhesive on outdated dry transfer lettering     Align lettering     Transfer lettering
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 5
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the advantages and disadvantages of dry transfer lettering, the purpose of dry transfer lettering, and the procedures for using dry transfer lettering.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Attach moisture trap to airbrush
Knowledge you should have to perform this skill:	Define: <ul> <li>Airbrush</li> <li>Moisture trap</li> <li>Compressor</li> <li>Recall how to:</li> <li>Troubleshoot moisture problems during the airpainting process</li> <li>Splice air hose lines</li> <li>Position and connect moisture traps to air hoses</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about air pressure and purity, troubleshooting air pressure fluctuations, the purpose of a moisture trap, and locating a moisture trap.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Attach regulators to air sources
Knowledge you should have to perform this skill:	Define:      Compressors     Regulators Recall how to:     Identify air sources     Identify air pressure fluctuations     Troubleshoot air pressure fluctuations     Attach regulators to compressor heads
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3 Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about variant air sources, dangerous practices when handling air sources, correct air pressure and pressure fluctuations, the purpose of a regulator, and the location of a regulator.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Cut friskets and templates
Knowledge you should have to perform this skill:	Define:     Frisket     Mask     Template Recall how to:     Airpaint a sharp line image     Airpaint a soft line image     Create a template for uniform repeats
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purpose, characteristics, and differences between friskets, masks, and templates, using a frisket, and making and using a template.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Mask areas
Knowledge you should have to perform this skill:	Define:      Masks     Friskets     Templates Recall how to:     Place a mask over an image     Cut masks     Remove masks     Touch up image areas not protected by the mask
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purpose of masks, differences between masks, friskets, and templates, types of masks, adhesives for masks, cutting masks, removing masks, and touching up images after removing the mask.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select pigments for airbrushing
Knowledge you should have to perform this skill:	<ul> <li>Define</li> <li>Color cup</li> <li>Color bottle</li> <li>Vehicle base</li> <li>Recall how to:</li> <li>Identify the different types of airbrushes and state their purpose</li> <li>Vary air pressure using a regulator attached to the compressor</li> <li>Determine the vehicle base of pigments</li> <li>Identify the solvent required for different types of pigment</li> <li>Mix pigments</li> <li>Strain pigments</li> <li>Load a color cup</li> <li>Load a color bottle</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about pigment viscosity, pigment vehicles, mixing pigments, loading color cups and color bottles, straining the pigment, air pressure, appropriate solvents, appearances of pigment when wet or dry, and cleaning the airbrush.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Retouch photographs
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Fuller's Earth</li> <li>Silhouetting</li> <li>Vignetting</li> <li>Recall how to:</li> <li>Use an airbrush</li> <li>Prepare the surface of a photograph to accept pigments</li> <li>Select the appropriate pigment for the airbrush</li> <li>Prepare retouch grays or color pigments for airpainting</li> <li>Remove unwanted overspray</li> <li>Blend pigments into a photograph</li> <li>Silhouette or vignette an image</li> <li>Surround an image to eliminate the background</li> <li>Handpaint highlights</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 3, Chapters 6 and 7</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the official policy on image alteration, preparing the surface of a photograph for airpainting, selecting pigments or retouch grays for retouching photographs, removing overspray, silhouetting, vignetting, and eliminating backgrounds, and handpainting highlights into photographs.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Apply graduated tones
Knowledge you should have to perform this skill:	Define:      Tone     Gradated tone Recall how to:     Set up an airbrush unit     Select pigments for airpainting     Prepare pigments for airpainting     Select and prepare a substrate surface     Airbrush a graduated tonal pattern
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the set up of an airbrush unit, psi, pigment selection, substrate surface characteristics, creative effects, the correct position of the airbrush in the hand, the sequential steps for beginning a spray pattern, controlling the airbrush once spraying has begun, and the correct order of strokes for airpainting graduated tone.

General DM Skill Area	Graphic arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Reproduce artwork
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Line copy</li> <li>Continuous tone</li> <li>Halftone</li> <li>Combination copy</li> <li>Recall how to:</li> <li>Prepare artwork for reproduction</li> <li>Select the appropriate media for use in imagery intended for reproduction</li> <li>Reproduce images by: <ul> <li>Computer</li> <li>Diazo</li> <li>Thermagraphic methods</li> <li>Xerographic methods</li> <li>Photographic methods</li> </ul> </li> <li>Select a film for reproducing images</li> <li>Develop photographic film</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 3, and 4</li> <li>DM Volume 3, Chapter 7</li> <li>DM Volume 4, Chapter 1</li> <li>NAVSEAINST 4570.3</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUBINST 5600.44</li> <li>OPNAVINST 5290.1</li> <li>SECNAVINST 5870.5</li> <li>SECNAVINST 5870.6</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about line, continuous tone, halftone, and combination copy prepared for reproduction via computer, thermal, xerographic, diazo, and photographic methods, recognizing and addressing copyrighted art, selecting the correct film for the type of artwork intended for reproduction, selecting the correct development process for the selected film, and choosing appropriate substrates for the final image.

General DM Skill Area	Graphic arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Calculate percentages of reductions and enlargements
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Proportional scale</li> <li>Crop arms</li> <li>Recall how to:</li> <li>Scale artwork, photographs, and text</li> <li>Use a proportional scale</li> <li>Use the diagonal line method of enlargement or reduction</li> <li>Determine the size of master artwork based on intended method of reproduction</li> <li>Setting scales on a process camera</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the industry accepted page format standards, recommended ratios for enlargement or reduction of master art, line resolution, tonal reproduction, using a proportional scale, using the diagonal line method, and setting scales on a process camera.

General DM Skill Area	Graphic arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Calculate exposure times and f/stop settings
Knowledge you should have to perform this skill:	Define: <ul> <li>Aperture</li> <li>Shutter speed</li> <li>F/stops</li> <li>ISO</li> <li>F/16 rule</li> <li>Recall how to:                 <ul> <li>Set cameras with shutter speed priority</li> <li>Set aperture priority cameras</li> <li>Set manual camera settings</li> <li>Determine camera settings based on contrast and tonal patterns of master art</li> <li>Determine camera settings based on local illumination</li> <li>Use the f/16 rule</li> <li>Correct overexposure and underexposure</li> </ul> </li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about setting ISO, aperture, and shutter-speeds on process and handheld cameras, lighting conditions, natural light, and using the rule of f/16, and the relationship of aperture to shutter-speed to ISO.

General DM Skill Area	Graphic arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Position unexposed film or paper in a process camera
Knowledge you should have to perform this skill:	<ul> <li>Film plane</li> <li>Focal plane</li> <li>Lens plane</li> <li>Copy plane</li> <li>Recall how to:</li> <li>Identify the various parts of a process camera</li> <li>Locate the film plane</li> <li>Determine lighting conditions</li> <li>Determine film or paper sensitivity</li> <li>Determine the emulsion surface of film or paper</li> <li>Position the film in the film plane</li> <li>Activate the vacuum system</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about process camera nomenclature, the locations of the major planes, the functions of the major planes, reducing local light into darkroom conditions, different light sensitivities of film and paper, the ideal position of film or paper for optimum exposure, sealing the film plane, and how to activate the vacuum system.

General DM Skill Area	Graphic arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Program copy cameras
Knowledge you should have to perform this skill:	Define:      Macro     Focal length     ISO     Aperture     Shutter speed     Depth of field Recall how to:     Select lenses for specific purposes     Change lenses     Change film backs     Set aperture     Set shutter speed     Set ISO     Position lights on the copyboard     Trip timer or shutter
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 2</li><li>DM Volume 3, Chapter 7</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purposes of various lenses, the specific purpose and range of macro lenses, macro lens capabilities, selective depth of field, changing lenses and film backs on copy cameras, positioning lights on a copyboard, and setting the timer or tripping the shutter.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw schematics and wiring diagrams
Knowledge you should have to perform this skill:	Define:      Schematic diagrams     Wiring diagrams Recall how to:     Layout formal balance     Use technical reservoir pens     Use basic drafting and drawing tools     Prepare substrates for reproduction     Reproduce drawings using thermal, diazo.     Xerographic, and computer methods     Identify wiring codes for shore, ship, and aircraft use
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the difference between schematics and wiring diagrams for ships and aircraft, methods of drawing, methods of reproduction, and industry standard symbology.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw equipment layouts and floor plans
Knowledge you should have to perform this skill:	Define:     Plan     Elevation Recall how to:     Use basic drafting and drawing tools     Recognize common floor plan features     Recognize common equipment silhouettes     Plot floor layouts     Proportion floor and equipment     Assess traffic patterns and production requirements
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 1 and 2</li> <li>DM Volume 2, Chapters 1 through 5</li> <li>DM Volume 3, Chapters 1 and 5</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about measuring spaces and transferring measurements using various scales, proportionally scaling equipment and furniture, traffic patterns, shop practices, and recognizing industry standard architectural feature symbols.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw orthographic projections
Knowledge you should have to perform this skill:	Define:  Orthographic projection  Axonometric projections  Isometric  Diametric  Trimetric  Multiview projections  First angle  Second angle  Third angle  Fourth angle  Fourth angle  Becall how to:  Use basic drafting and drawing tools  Distinguish between oblique and orthographic projections  Identify axonometric and multiview projections  Identify the key points of isometric, dimetric, and trimetric layouts  Locate the picture plan in the difference angles of projection  Determine the best views for inclusion in an orthographic multiview projection  Draw circles, arcs, and ellipses in orthographic projections  Draw lines and points parallel to and perpendicular to the plane of projection  Measure lines parallel to or perpendicular to the major axes  Measure true length or angularity

References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, chapters 1, 2, 3, 4, and 6</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the similarities and differences between oblique and orthographic projections, axonometric relationships of the isometric, diametric, and trimetric axes to the plane of projection, the multiview projection of the four angles of projection, selection of principal views, projecting principal views, and the effects of distortion on circles, arc, ellipses, lines and points parallel or perpendicular to the plane of projection in both axonometric and multiview projections, and determining true length or angularity in orthographic projections and dimensioning.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw oblique projections
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Oblique projections</li> <li>Cavalier projection</li> <li>Cabinet projection</li> <li>Foreshortening</li> <li>Recall how to:</li> <li>Use basic drafting and drawing tools</li> <li>Select necessary views</li> <li>Project true length and angularity in oblique projection</li> <li>Depict circles, arcs, and ellipses on parallel and nonparallel surfaces</li> <li>Dimension oblique drawings</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1, 2, 3, and 6</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about differentiating between oblique and orthographic projections, projecting cavalier and cabinet projections, correcting distortion and foreshortening, determining true length and angularity, depicting shapes parallel to and nonparallel to the picture plane, and dimensioning oblique drawings.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw isometric projections and exploded views
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Isometric projection</li> <li>Isometric axes</li> <li>Nonisometric lines</li> <li>Isometric planes</li> <li>Exploded views</li> <li>Recall how to:</li> <li>Use a protractor</li> <li>Use basic drafting and drawing tools</li> <li>Project angular measurements</li> <li>Construct isometric lines</li> <li>Create an isometric scale</li> <li>Use an isometric scale</li> <li>Use an architect's scale</li> <li>Draw circles, arcs, and ellipses on surfaces parallel and nonparallel to the picture plane</li> <li>Determine true line length and angularity</li> <li>Use sectional views</li> <li>Dimension isometric drawings</li> <li>Draw exploded views</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1, 2, 3, 4, and 6</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about locating isometric axes, foreshortening, isometric lines and planes, exploded views, creating an isometric scale, using an isometric scale, using offset or coordinate measurements to locate features, drawing circles, arcs, and ellipses in isometric projections, using conjugate diameters to construct ellipses, projecting angularity, using sectional views, and dimensioning isometric drawings.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw technical sketches
Knowledge you should have to perform this skill:	Define:      Technical sketching     Technical drawing     Trammel Recall how to:     Use basic drafting and drawing tools     Use contour drawing techniques     Use combination drawing techniques     Reduce objects to basic shapes     Depict perspective     Use a scale     Use basic drawing instruments
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1,2, and 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purposes of technical drawing and sketching, free hand sketching, selection of media and substrates for technical sketching, drawing scales or ratios, proportion, sharpening pencils, sketching techniques for various geometric shapes, how to use a trammel, and transferring imagery.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create construction drawings, architectural layouts, layouts of roads, parking areas, and existing or proposed contours
Knowledge you should have to perform this skill:	Define:     Perspective projections     Parallel projections Recall how to:     Use a scale     Use basic drawing instruments     Select an appropriate medium     Recognize structural and architectural symbols     Draw technical sketches and drawings     Refine technical sketches and drawings     Reproduce technical sketches and drawings
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 4</li> <li>DM Volume 2, Chapters 1, 2, and 4</li> <li>DM Volume 3, Chapter 3</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about laying out geometric forms, selecting and using a media appropriate for different types of reproduction, using structural and architectural symbols, using a scale, determining proportion, and using basic drawing and drafting instruments.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create shop and fabrication drawings
Knowledge you should have to perform this skill:	Define DOD-MIL Standards Recall how to:      Create technical sketches and drawings     Use a scale     Use basic drafting instruments     Select media and substrates     Determine tolerances     Depict common machine drawing parts     Indicate finish marks     Use machine drawing nomenclature
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 through 4</li> <li>DM Volume 3, Chapter 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about tolerances, surface tolerances, finish marks, fillets and rounds, slots and slides, keys, keyseats and keyways, screw thread conventions, gear nomenclature, and DOD-MIL Standards.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator adjustments on reproduction equipment
Knowledge you should have to perform this skill:	Define reproduction equipment Recall how to use:  Thermal reproduction equipment  Xerographic reproduction equipment  Diazo reproduction equipment  An engraver  A copier  A computer printer  Camera equipment
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 3, and 4</li> <li>DM Volume 3, Chapters 7 and 8</li> <li>Operator manuals</li> <li>Navy 3M Preventive Maintenance Manual</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about inspecting reproduction equipment prior to use, setting reproduction equipment, troubleshooting, cleaning periodicities, and cleaning procedures.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean and inspect drawing instruments
Knowledge you should have to perform this skill:	Identify correct cleaning procedures and preventive maintenance procedures for basic drafting and drawing instruments
References you should study to gain the knowledge you need to perform this skill:	DM Volume 1, Chapter 2
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about cleaning and maintaining basic drafting and drawing instruments, identifying appropriate cleaning solvents, harmful practices, signs of wear, and preventative maintenance measures to protect and prolong the useful life of the equipment.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator checks and adjustments on typesetting paper processors
Knowledge you should have to perform this skill:	Define typesetting paper processors Recall how to:  Inspect processors before use Set processors Adjust processors Troubleshoot processors Clean processors
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>Operator manuals</li> <li>Navy 3M Preventive Maintenance Manual</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about inspecting processors before use, chemical balance and controls, setting processors, adjusting controls of processors, troubleshooting, cleaning procedures, solvents, and periodicities.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator checks and adjustments on copy cameras
Knowledge you should have to perform this skill:	Define copy cameras Recall how to:  Inspect cameras before use Clean cameras with the appropriate solvents Oil particular components Set copy cameras Adjust settings on copy cameras Troubleshoot copy cameras
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> <li>Operator manuals</li> <li>Navy 3M Preventive Maintenance Manual</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about inspecting cameras for wear, inspecting power sources, cleaning cameras parts with appropriate solvents, cleaning periodicities, disposing of soiled solvent soaked tissues, oiling gears, setting aperture, shutter-speed, ratio, and lights on copy cameras, adjusting lights on copyboard, changing lights, adjusting settings of copy cameras, and troubleshooting.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator checks on typecomposing equipment
Knowledge you should have to perform this skill:	Define typecomposing equipment Recall how to:  Inspect typecomposing equipment before use  Set typecomposing equipment  Adjust typecomposing equipment  Troubleshoot typecomposing equipment  Load typecomposing equipment  Clean typecomposing equipment
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 4</li> <li>Operator manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the different types of typecomposing equipment, theories of operation, inspecting equipment before use, setting equipment, adjusting the settings, troubleshooting failed equipment or unsatisfactory performance, loading cartridges, film, or ribbons into equipment, cleaning procedures, and periodicities.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Change or replenish chemicals in processors
Knowledge you should have to perform this skill:	Define chemical processors Recall how to:  Determine chemical process Inspect chemical processors for chemical depletion Clean chemical bays Mix dry chemicals Stabilize chemical temperatures Load chemicals into chemical bays Refresh or extend chemical life Troubleshoot chemical inconsistencies
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> <li>Operator manuals</li> <li>NAVSEAINST 4570.3</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on the two processes of chemical development for papers and film products, troubleshooting for chemical inconsistencies, chemical contamination, refreshing or replenishing chemicals, dumping chemistry, silver or precious metal recovery, mixing dry chemicals, stabilizing chemical temperatures, cleaning chemical bays or trays, and loading new chemistry into processors.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, perform operator checks, and replenish liquid and dry toners in copiers
Knowledge you should have to perform this skill:	Define:      Copiers     Economical copier use Recall how to:     Inspect copiers before use     Clean copiers     Open copier cabinets     Remove expended liquid or dry toner cartridges     Dispose of toner cartridges     Reloading toner cartridges     Monitoring copy use     Comply with Navy copier regulations
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>Operator manuals</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUBINST 5600.44</li> <li>NAVPUBINST P-2002</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect question about inspecting copiers before use, cleaning copier surfaces, safety switches, opening copier cabinet doors, setting copier functions, clearing paper paths, loading and unloading toner cartridges, disposing of toner cartridges, monitoring copy use, identifying copier abuse, complying with Navy regulations on placing government markings on the glass platen, tracking copier expenditures in supplies, logging copier jobs, and reporting copier use to JCP.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and remove and replace components of engraving equipment
Knowledge you should have to perform this skill:	Define:      Engraving equipment     Jigs     Galleys     Fonts     Cutters Recall how to:     Inspect engraving equipment before use     Clean engraving equipment of debris     Hook up the motor to the cutting arm     Place a cutter in the cutting arm     Determine whether a carbide or diamond tip cutter is required     Select a font     Set the cutter arm to tracer arm ratio     Load the galley     Load the jig     Engrave plastics and metals
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 4</li><li>Operating manuals</li></ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about the theory of operation for an engraver, when to use a motor, when to use a diamond or carbide tip cutter, selecting fonts, setting the cutting arm to tracer arm ratio to enlarge or reduce letter size, loading the galley, adjusting the galley, loading the jigs, and cleaning away debris left by the engraving process.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean and inspect flatbed scanners
Knowledge you should have to perform this skill:	Define:      Flatbed scanners     Grey scale scanners     Color scanners     Handheld scanners Recall how to     Inspect scanners before use     Select an appropriate scanner     Clean scanner surfaces
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapter 8</li> <li>Operator manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about scanners and scanner use, inspecting a scanner before using, and cleaning scanner surfaces.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Test and inspect film dryers
Knowledge you should have to perform this skill:	Define film dryers Recall how to:  Inspect film dryers before use Set film dryers to an appropriate temperature Check for internal cleanliness of the dry surfaces Clean the film dryer
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 3, Chapter 8</li><li>Operator manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about inspecting film dryers before use, inspecting dryers for internal cleanliness, clean film dryer surfaces, setting film dryers at the appropriate temperatures.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Print color documents and transparencies
Knowledge you should have to perform this skill:	Define:      VGA     SVGA     Dpi     CEPS Recall how to:     Scan images     Create images in the computer     Prepare a digitized master     Set color printers     Print color images
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapters 2 and 8</li> <li>Dm Volume 4, Chapter 1</li> <li>Operator manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the theory of electronic color, how CEPS printers work, settings on a color computer printer, scanning color images, preparing a digitized color master, and printing color on paper or film.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Print large drawings and documents with plotters
Knowledge you should have to perform this skill:	Define plotters Recall how to:  Digitize masters Connect plotters to computers Change plotter points Set plotter
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 3</li><li>Operator manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about drawings and documents that exceed standard bond size, memory requirements, and plotter set up.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create, retrieve, and change directories and subdirectories
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Directories</li> <li>Subdirectories</li> <li>Recall how to:</li> <li>Store data on disks and hard drives</li> <li>Identify different types of directories</li> <li>Identify directory locations</li> <li>Name a directory or subdirectory</li> <li>Identify file extensions</li> <li>Identify domains</li> <li>Search for directory and subdirectory locations</li> <li>Open directories and subdirectories</li> <li>Edit directories and subdirectories</li> <li>Purge directories and subdirectories</li> <li>Archive directories and subdirectories</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapter 8</li> <li>SECNAVINST 5210.11</li> <li>Operators manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about saving data to disks and hard drives, purging and archiving directories and subdirectories, directory and subdirectory hierarchies, files names, file extensions, domains, search options, wild cards, and opening and editing directories and subdirectories.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Layout project dimensions
Knowledge you should have to perform this skill:	Define pagination Recall how to:      Create documents     Open documents     Edit documents     Enter data     Set page formats     Set margins     Set text     Set tables     Save documents     Close documents
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapter 8</li> <li>Software operators manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about creating new documents, opening and editing documents, entering data, setting page formats, margins, text, and tables, saving documents, and closing documents.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install mouse type devices
Knowledge you should have to perform this skill:	Define:  • Mouse  • Input devices Recall how to:  • Set up a microcomputer  • Install a mouse
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 3</li><li>Operators manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about input, output, and editing devices and their installation.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create tags and retrieve and modify existing tags
Knowledge you should have to perform this skill:	Define tags Recall how to:      Set page layouts     Paginate     Save formats     Open formats     Change formats
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 3, Chapter 8</li><li>Operators manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about creating and saving tags.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create frames and retrieve and modify existing frames
Knowledge you should have to perform this skill:	Define:  • Frames  • Tags Recall how to:  • Create, retrieve, and modify tags  • Create frames  • Set page layouts  • Set page formats  • Paginate  • Set text  • Set tables  • Save frames  • Select frames  • Edit frames
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 3, Chapter 8</li><li>Software operators manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about creating frames, retrieving and editing existing frames, and the differences between tags and frames.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create style sheets and retrieve and modify existing style sheets
Knowledge you should have to perform this skill:	Define:     Style sheets     Tags     Frames     Pagination Recall how to:     Create tags     Create frames     Save tags, frames, and style sheets     Paginate     Set page layouts     Set text     Set margins     Select style sheets     Edit style sheets
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 3, Chapter 8</li><li>Software operators manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the similarities and differences between tags, frames, and style sheets, and creating, retrieving and modifying styles sheets.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Change text attribute
Knowledge you should have to perform this skill:	Define:      Text attributes     Pica     Points     Pixels Recall how to:     Select and edit tags, frames, and style sheets     Format text     Select typeface     Select point size     Justify text     Flush text     Distort text     Embellish text     Change text weight     Italicize text     Underline text     Save changes to text attributes
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapter 8</li> <li>DM Volume 4, Chapter 1</li> <li>Software operating manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about formatting text, changing typeface and point size, increasing or decreasing letter weight, distorting letter geometry or font metrics, positioning text, justifying text, using flush left or right features, underlining, italicizing, or bolding text, and saving text attributes.

#### Part 2

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw one-, two-, and three-point perspectives
Knowledge you should have to perform this skill:	Define:      Station point     Vanishing point     Horizon line     Ground line     Picture plane     Projectors     Piercing points     Foreshortening     One point perspective     Two point perspective     Three point perspective Recall how to:     Use basic drafting and drawing tools     Locate station points, vanishing points, and the picture plane     Foreshorten receding projectors
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 2 and 5</li> <li>DM Volume 3, Chapters 1 and 2</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the placement of station points, vanishing points, horizon line, ground line, and picture plane, describe piercing points and foreshortening, the effects of color on perspective, and moving vanishing points to control images.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create caricatures
Knowledge you should have to perform this skill:	Define: <ul> <li>Caricature</li> <li>Personification</li> <li>Typecasting</li> <li>Recall how to:                 <ul> <li>Use basic drafting and drawing tools</li> <li>Assign features for character development</li> <li>Exaggerate prominent features</li> <li>Dress figures</li> </ul> </li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapter 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect question about differences between cartooning, figure drawing, and caricatures, observing and exaggerating prominent features, selecting features to develop character, and dressing caricatures.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create oil paint illustrations
Knowledge you should have to perform this skill:	Define:     Extenders     Impastos     Reducers     Substrates     Grounds     Underpainting     Overpainting     Grisaille     Scumbling     Glazing     Alla prima Recall how to:     Prepare substrates     Prepare a ground     Mix oil pigments     Alter pigment viscosity     Select and use brushes, palettes, and palette knives     Clean and preserve brushes     Store unused, mixed pigments     Pint with enamel- and lacquer-based pigments     Glaze or scumble paint     Create the effects of luminosity and iridescence     Place a finish coat or fixative over pigment     Clean dirty or aged painted surfaces

References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 1 and 2</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting and preparing substrates, preparing a ground, mixing pigments, extending or reducing pigments, pigment compositions, painting all prima, improvised painting, underpainting, overpainting, grisaille, the differences between scumbling and glazing, pigment storage, finish coats, cleaning painted surfaces, selecting brushes, cleaning brushes, and creating the effects of luminosity and iridescence.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create watercolor and tempera paint illustrations
Knowledge you should have to perform this skill:	Define:     Permanence     Opacity     Vehicle     Substrates     Gouache     Tempera     Watercolor     Casein     Wet-brush blending     Dry-brush blending Recall how to:     Determine permanence     Evaluate opacity     Identify a vehicle     Select and prepare appropriate substrates     Use, store, and fix gouache, tempera, casein, and watercolor     Use the wet-brush blending technique     Use the dry-brush blending technique
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 1 and 2</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about the permanence and opacity of water-based pigments, distinctive vehicle characteristics of watercolor, gouache, tempera, and casein, storage of unused water-based pigments, selection and preparation of appropriate substrates, paper stretching, finish techniques for water-based pigments, selecting appropriate bushes, cleaning and storing brushes, and using the wet-brush and drybrush blending techniques.

General DM Skill Area	Illustrations and mediums
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create acrylic paint illustrations
Knowledge you should have to perform this skill:	Define: <ul> <li>Acrylic</li> <li>Extenders</li> <li>Reducers</li> <li>Impastos</li> <li>Permanence</li> <li>Opacity</li> <li>Grounds</li> <li>Substrates</li> <li>Atomizers</li> </ul> <li>Recall how to:         <ul> <li>Identify an acrylic pigment</li> <li>Alter pigment viscosity</li> <li>Select an appropriate solvent</li> <li>Select and use brushes and palette knives</li> <li>Clean brushes and palette knives</li> <li>Select and prepare substrates</li> <li>Use an atomizer or special effects tools</li> </ul> </li>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 1 and 2</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about pigment opacity, altering viscosity, selecting a solvent, selecting and preparing a substrate, using special effects tools, using an atomizer, acrylic finishing techniques, pigment storage, glazing, scumbling, and using the wet-brush and drybrush blending techniques.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create artwork for 35mm slides
Knowledge you should have to perform this skill:	Define:      35mm slide ratio     Thumbspots Recall how to:     Use basic drafting and drawing tools     Select colors of sufficient contrast     Use a waxer     Compose images using multiple elements     Proportion artwork for slide production     Mount slides     Mark slides     Classify slides
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 4, and 5</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1, 2, 5, 7, and 8</li> <li>DM Volume 4, Chapter 2</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5510.30A</li> <li>SECNAVINST 5510.36</li> <li>SECNAVINST 5870.5</li> <li>SECNAVINST 5870.6</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about use basic drafting and drawing tools, methods of reproduction for 35mm slides, using a waxer, waxer maintenance, selecting art for 35mm slides, composing images, proportion ratios, producing slides, advantages and disadvantages of slides, mounting slides, marking slide mounts with thumbspots for front and rear screen projection, marking slides by categories, marking and storing classified slides.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Fabricate displays and exhibits
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Displays</li> <li>Exhibits</li> <li>Recall how to:</li> <li>Evaluate location for a display or exhibit</li> <li>Differentiate between a display and an exhibit</li> <li>Use basic drafting and drawing tools</li> <li>Use color effectively</li> <li>Identify the intended audience for displays and exhibits</li> <li>Identify the impact of displays and exhibits</li> <li>Select a hanging format for displays and exhibits</li> <li>Catalog and annotate displays and exhibits</li> <li>Store displays and exhibits</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1 through 8</li> <li>DM Volume 4, Chapter 4</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about lecture aids, posters, charts, graphs, presentation methods, matting and mounting; identifying, marking, cataloging, and storing display and exhibit material, selecting a location for a display or exhibit, controlling presentation space, targeting specific audiences, and hanging display and exhibition materials.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Scan images and input digital imagery
Knowledge you should have to perform this skill:	Define:  Scan  Scanners  -Hand held  -Flatbed  -Copystand  -Slide  Digital imagery  Keyboard  Mouse  Light pen  Function keys  Numeric keypad  Recall how to:  Place images into a scanner  Set parameters of scanner  Describe scanners and their characteristics  Identify characteristics of color and gray-scale scanners  Use input devices such as keyboards, mouse, light pens and styluses, function keys, and the numeric keypad  Identify the determinate of function keys
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapter 8</li> </ul>

Exam Expectations. These	
are subject areas you	
should know to help you	
answer exam questions	
correctly:	

Expect questions about using scanners to digitize images, selecting scanner capabilities, and using input devices to modify images.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Input images into laser copier from 35mm slides and still video disks and transfer digital imagery to 35mm film
Knowledge you should have to perform this skill:	Define:      Digital imagery     Still video disks     Input devices Recall how to:      Use input devices such as keyboards, mouse, light pens and styluses, and numeric keypads     Load film into a film recorder     Load images into a laser copier     Program a laser copier     Save data on still video disks
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapters 7 and 8</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about recording chrominance and luminance, loading films into film recorders, setting film recorders, loading laser copiers, and programming laser copiers.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select proper printing processes
Knowledge you should have to perform this skill:	Define:      Letterpress     Gravure     Lithography/offset lithography     Electronic digitization Recall how to:     Identify the advantages and limitations of each printing process     Describe the theory of each printing process
References you should study to gain the knowledge you need to perform this skill:	DM Volume 4, Chapter 1
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect question about the theory of each printing process and the advantages and limitations to each of the processes.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select inks
Knowledge you should have to perform this skill:	Define:     Process color     Pantone color     CYMK     RGB Recall how to:     Create color images that most closely approximates process inks     Select a color mode in the computer to replicate process color
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapters 2 and 8</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the different theories of color and selecting color modes for use on prepress and electronic prepress art.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Select print stock
Knowledge you should have to perform this skill:	Define:     Stock     Self cover     Tooth     Signatures     Clay coat     Cardstock     Ply     Weight     Ream Recall how to:     Determine the end use and durability of a product     Select a stock suitable for halftone and continuous tone images     Identify how many sheets of stock in a ream     Identify paper characteristics     Identify paper weights
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 4, Chapter 1</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about recognizing the expected durability of the printed product, the characteristics of paper surfaces, surface textures that support or do not support halftone or continuous tone art., paper sizes or format, and multipage units.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Compose copy from a manuscript
Knowledge you should have to perform this skill:	Define:      Copy     Copy casting     Copyfitting     Typesetting     Pica     Points     Elite Recall how to:     Identify copy     Use the copy casting or copyfitting processes     Use the character count method     Use the line measurement method     Determine the number of characters in a typeset line
References you should study to gain the knowledge you need to perform this skill:	DM Volume 4, Chapter 1
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about identifying line copy or text copy, determining the number of characters in a typeset line, using the character count or line measurement method of copyfitting, and indicating line length to the printer.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create continuous tone copy
Knowledge you should have to perform this skill:	Define:
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 and 5</li> <li>DM Volume 3, Chapters 1 through 8</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about continuous tone art and all the methods of creating continuous tone artwork.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create halftone copy
Knowledge you should have to perform this skill:	Define: <ul> <li>Copy</li> <li>Halftone</li> <li>Moire</li> </ul> <li>Recall how to:         <ul> <li>Use shading sheets</li> <li>Stipple and crosshatch</li> <li>Select a screen ruling</li> <li>Position the halftone screen in the camera</li> <li>Rescreen halftone images</li> <li>Prevent or reduce moire</li> </ul> </li>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2 and 4</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1 and 7</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about adding tonal values to line art, selecting a screen ruling for color or black and white art, positioning the halftone screen in the camera, rescreening previously screened art, and preventing or reducing moire.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Eliminate or soften backgrounds (silhouetting or vignetting)
Knowledge you should have to perform this skill:	Define:      Silhouetting     Vignetting     Fuller's Earth Recall how to:     Use basic drafting and drawing tools     Use an airbrush     Cut masks and friskets     Mix and match pigments     Prepare photographic surfaces to accept pigments     Apply pigment to photographic surfaces
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1, 2, 6, and 7</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about background clutter, simplicity, determining background importance, covering areas with masks or friskets, preparing photographic surfaces with Fuller's Earth, mixing and matching retouch grays and color pigments, airbrushing graduated tones and solids, cleaning overspray, and highlighting.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare layouts in signature formats
Knowledge you should have to perform this skill:	Define:      Signatures     Preliminary dummies     Paste up dummies     Mechanicals Recall how to:     Use basic drafting and drawing tools     Prepare preliminary dummies     Prepare paste up dummies     Prepare mechanicals     Calculate page formats     Calculate page formats in multiples
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapter 2</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about calculating page formats and formats in multiples, using basic drafting and drawing tools, preparing preliminary dummies and paste up dummies, and constructing mechanicals.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform quality control inspections
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Quality control</li> <li>Proofreading</li> <li>Recall how to:</li> <li>Determine if the job exists in the system</li> <li>How to retrieve a preprinted job from the system</li> <li>Proofread text, art, and mechanicals</li> <li>Annotate copy and mechanicals with proofreader's or editor's marks</li> <li>Compare original job order with finished product</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 4, Chapter 1</li> <li>JCP No. 26</li> <li>NAVPUBINST P-2002</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUNINST 5600.44</li> <li>SECNAVINST 5213.10</li> <li>SECNAVINST 5603.2</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about proofreading text, art, and mechanical format, marking changes in text and art, checking the validity of the original work order, and checking the original work order against the finished product.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Evaluate and make recommendations on media production requirements
Knowledge you should have to perform this skill:	Define media production Recall how to:  • Evaluate an originator's request  • Recommend methods of presentation or reproduction  • Complete forms and track media production
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 1, 4, and 5</li> <li>DM Volume 4, Chapters 2, 3, and 4</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUBINST 5600.44</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about evaluating the needs of the originator, the intended use of the end product, media and reproduction limitations, and required forms and tracking.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Review and process work requests for items subject to forms control
Knowledge you should have to perform this skill:	Recall how to:  • Evaluate forms for currency  • Determine appropriateness of work request  • Requisition existing forms form the system
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>JCP No. 26</li> <li>NAVPUBINST P-2002</li> <li>NAVPUBINST 5213.10</li> <li>NAVPUBINST 5600.42</li> <li>NAVPUBINST 5600.44</li> <li>SECANVINST 5215.1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about reviewing work request for compliance with Navy instructions, evaluate forms for required sequencing numbers and currency, retrieve existing forms from the stock system.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Research and estimate printing costs
Knowledge you should have to perform this skill:	Recall how to evaluate requested products and determine costs based on man hours and supplies expended.
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>DODINST 4000.19</li> <li>JCP NO. 26</li> <li>OPNAVINST 5290.1A</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about evaluating job requests, dividing jobs into tasks, interfacing with support shops, and calculating job costs based on man hours and supplies expended.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Check proof sheets against job specifications
Knowledge you should have to perform this skill:	Recall how to read a job order and match the finished product with the specifications of the originator
References you should study to gain the knowledge you need to perform this skill:	DM Volume 1, chapter 1
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions on filling out job orders, standard information on job orders, keeping a log on job orders, and job order files.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Receive and release classified originals, negatives, and copies
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Confidential</li> <li>Secret</li> <li>Top Secret</li> <li>Recall how to:</li> <li>Identify classified text and art</li> <li>Mark classified text and art</li> <li>Mark classified visual media</li> <li>Account for the location of classified media</li> <li>Safeguard classified media</li> <li>Maintain a record of classified reproductions</li> <li>Log classified media</li> <li>Transfer possession of classified media</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 3</li> <li>DM Volume 3, Chapter 8</li> <li>OPNAVINST 5239.1</li> <li>SECNAVINST 5510.30A</li> <li>SECNAVINST 5510.36</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the three security classification categories, marking classified paragraphs, pages, and titles in text, marking classified art, photographs, slides, viewgraphs, and other visual media, marking restricted areas, computer monitors, copiers, and reproduction machines that duplicate or create classified media, safeguarding classified media,

wrapping and transmitting classified media, accounting for piece parts and overruns of classified media during reproduction, maintaining a record of classified production, logging classified jobs, and releasing classified media to originators.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Assemble airbrushes and compressors
Knowledge you should have to perform this skill:	Define:  Single-action airbrush Double-action airbrush Oscillating airbrush Moisture traps Regulators Compressors Inert gas Recall how to: Select an appropriate airbrush Disassemble and reassemble an airbrush Inspect an airbrush needle Install and load a color cup or bottle Clean airbrushes and color cups or bottles Install a moisture trap Adjust a regulator Select an air source Connect an airbrush to an air source Monitor the air source Drain the compressor
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect question about selecting an airbrush to fit requirements, disassembling the airbrush, inspect internal parts, reassembling the airbrush, replacing faulty parts of an airbrush, connecting the airbrush to a hose, holding an airbrush, the sequence of airbrush strokes, inspecting hoses, installing a moisture trap, setting a regulator, selecting an air source, connecting a compressor, starting a compressor, draining a compressor.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Mix pigments for airbrushing
Knowledge you should have to perform this skill:	Recall how to select pigments and vehicle, mix pigments, and load color cups or bottles
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting the appropriate pigment for the airbrush, mixing pigment with the correct vehicle, judging viscosity, straining the pigment, and loading color cups or bottles.

General DM Skill Area	Airbrush
A <i>skill</i> you are expected to perform from the General Skill Area above:	Airbrush illustrations, textiles, and even tones
Knowledge you should have to perform this skill:	Define:      Masks     Friskets     Textiles Recall how to:     Set up an airbrush and compressor     Mix and load pigments     Protect areas with masks and friskets     Clean overspray     Add highlights     Clean airbrushes and compressors     Clean color cups and bottles
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 6
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting airbrushes and air sources, trouble shooting airbrushes, recommended air pressures, placing masks or friskets over protected areas, loading color cups or bottles, holding the airbrush correctly, the correct sequence of strokes, the order of paint application, cleaning overspray, adding highlights, and cleaning airbrushes, compressors, and tools.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create reversal and film positives
Knowledge you should have to perform this skill:	Define:  • Film positives  • Reversals  Recall how to:  • Create line art  • Photographically enlarge or reduce art  • Identify emulsion side of films and papers  • Work in darkroom conditions  • Load film into process cameras  • Set process cameras  • Develop film or paper
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 4</li><li>DM Volume 3, Chapter 7</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting and creating line for photographic reproduction, describing a film positive and a reversal, identifying uses for film positives and reversals, identifying the emulsion side of papers and films under darkroom or safelight conditions, loading film into copy or process cameras, setting camera settings, developing films and papers in trays, and developing films and papers in automatic processors.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create halftone positives
Knowledge you should have to perform this skill:	Define halftones Recall how to:  Identify halftone art Screen or rescreen art Prevent or reduce moire Identify emulsion side of films and papers Handle films and papers under darkroom and safelight conditions Load a process camera Set a process camera Develop films and papers
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume1, Chapter 4</li><li>DM Volume 3, Chapter 7</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about how to identify halftone art and rescreened halftone art, selecting a screen rule, placing the screen in the process camera, handling films and papers under darkroom and safelight conditions, identifying the emulsion side of papers and films, loading process cameras, setting a process camera, developing films and papers in trays, and developing films and papers in automatic processors.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create special effects
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Special effects</li> <li>Burning</li> <li>Dodging</li> <li>Recall how to:</li> <li>Use filters on hand held cameras</li> <li>Identify emulsion side of films and papers</li> <li>Load films and papers in enlarger head</li> <li>Burn in areas</li> <li>Dodge areas</li> <li>Use common items such as tissues, Saran Wrap®, and Vaseline® for creative effects</li> <li>Develop films and papers</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about creating special effects in the camera and during darkroom procedures, using special effects filters, and improvising with common household items.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Annotate pictures, slides, and negatives
Knowledge you should have to perform this skill:	Recall how to place information on pictures, slides, and negatives, where to locate that information, and what medium to use
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapter 7</li> <li>SECNAVINST 5510.30</li> <li>SECNAVINST 5510.36A</li> <li>SECNAVINST 5870.5</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about marking classification markings, copyright, and supplemental identifying information on all forms of media.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Measure grey scale ranges
Knowledge you should have to perform this skill:	Define:     Grey scale ranges     Zone system Recall how to measure negative density
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 7
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about negative density and contrast.

General DM Skill Area	Graphics arts photography
A <i>skill</i> you are expected to perform from the General Skill Area above:	Enlarge and reduce photographs
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Croping</li> <li>Scaling</li> <li>Cropping arms</li> <li>Proportional scale</li> <li>Recall how to:</li> <li>Scale artwork, photographs, and text</li> <li>Use a proportional scale</li> <li>Use the diagonal line method of enlargement or reduction</li> <li>Determine the finished size base on allotted space</li> <li>Set scales on a process camera</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 3, Chapter 7</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the industry accepted page format standards, recommended ratios for enlarging or reducing, using a proportional scale, using the diagonal line method, using cropping arms, and setting the scales on a process camera.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Draw maps and nautical charts
Knowledge you should have to perform this skill:	Define:      Proportional dividers     Zone numbers Recall how to:     Read engineering symbols     Read topographical symbols     Use basic drafting and drawing tools     Reduce and enlarge artwork     Reproduce artwork in various media
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 3, and 4</li> <li>DM Volume 2, Chapter 2</li> <li>DM Volume 3, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about layout, different types of reproduction, placing zone numbers, using proportional dividers to lay out distances, using basic drawing and drafting tools, and working with ink.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Check layouts and drawings for technical accuracy
Knowledge you should have to perform this skill:	Recall how to check finished jobs for quality, accuracy, technical representation, and fulfilling the customer job order.
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>DM Volume 2, Chapters 1, 5, and 6</li> <li>DM Volume 4, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about industry accepted standards and symbols for printing, fabrication, and graphic representations, checking lists for sequence of quality assurance checks, following lists for checking and marking copy for reproduction, and the meanings of different symbols.

General DM Skill Area	Technical drafting and drawing
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create as-built drawing
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Orthographic projections</li> <li>Axonometric projections</li> <li>Oblique projections</li> <li>Recall how to:</li> <li>Use basic drafting and drawing tools</li> <li>Draw orthographic projections</li> <li>Draw section and exploded views</li> <li>Draw isometric and diametric projections</li> <li>Measure true linear and angular dimensions</li> <li>Accurately depict dimensions and tolerances</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapters 1 through 6</li> <li>DM Volume 3, Chapter 1</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting the correct type of orthographic projection, axonometric projections, drawing sectional and exploded views, using basic drafting and drawing tools to draw geometric shapes parallel and not parallel to the plane of projection, finding true linear dimensions, and measuring angularity.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator adjustments on visual presentation equipment
Knowledge you should have to perform this skill:	Recall basic audiovisual presentation equipment, inspect before use, how to use, and how to care for basic equipment
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 3 and 5</li> <li>DM Volume 4, Chapters 2, 3, and 4</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the different types of presentation equipment and their recommended uses, inspecting audiovisual equipment for wear or damage, setting up presentation equipment, the ideal presentation theater set up, troubleshooting equipment, changing bulbs, doing preventive maintenance, and using different types of presentation equipment.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator checks and adjustments on diazo machines
Knowledge you should have to perform this skill:	<ul> <li>Define: <ul> <li>Diazo</li> <li>Azo dyestuffs</li> <li>Foils</li> <li>Blueprint</li> <li>Anhydrous or gravity feeds</li> </ul> </li> <li>Recall how to: <ul> <li>Examine a diazo machine for wear and safety</li> <li>Set the drops per minute ratio</li> <li>Control the speed of the drum</li> <li>Set the timer on the blower motor</li> <li>Determine operator temperatures</li> <li>Divert masters and slip sheets from the developing section</li> <li>Determine the type of machine</li> <li>Locate and empty the residue bottle</li> <li>Store ammonia</li> <li>Dispose of the residue bottle contents</li> <li>Shut down the diazo machine</li> <li>Correctly place porous paper between the feed belts</li> <li>Clean the drip trays</li> <li>Clean the glass drum</li> <li>Clean the suction tubes</li> <li>Clean the outside of the machine</li> </ul> </li> </ul>

References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 4</li><li>Operator manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about types of diazo machine, feed systems, exposure units, developing units, theory of operation, master art requirements, blueprints, foils, intermediates, reversals, residual effects, residue bottles, ammonia storage, hazards of ammonia exposure, examining the machine for unsafe conditions, setting the drips per minute, setting drum speed, setting the blower motor, cleaning the various components of a diazo machine, cleaning periodicity, and troubleshooting diazo production.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform operator adjustments on typecomposing equipment
Knowledge you should have to perform this skill:	Define typecomposing equipment Recall how to:  Identify the different theories behind the development of typecomposing equipment  Select fonts  Set font size  Set scaleable fonts  Set exposure or pressure  Cut
References you should study to gain the knowledge you need to perform this skill:	DM Volume 1, Chapter 4
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the different theories of typecomposing machines such as impact/nonimpact, carbon, chemical, photographic, thermal, dye sublimation, and digitization, select and set fonts, font size, headlines, scaleable fonts, expose letters, and develop or fix composed type.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, perform operator checks, and test exposure equipment and process cameras
Knowledge you should have to perform this skill:	Recall how to inspect enlargers, hand held cameras, copy cameras, and process cameras for operability
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 4</li> <li>DM Volume 3, Chapter 7</li> <li>Operator manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about inspecting cameras and exposure equipment for safety, checking scale settings, shutter speeds, aperture settings, f/stops, the position of the film plane and copyboard, selecting light bulbs, changing light bulbs, and positioning the lights.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator adjustments on thermal printers
Knowledge you should have to perform this skill:	Recall how to inspect a thermal printer for safety, set the thermal printer, and clean the printer.
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter</li><li>Operator manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the theory of thermal printing, inspecting a thermal printer, and cleaning a thermal printer.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean and inspect hand scanners
Knowledge you should have to perform this skill:	Recall how to install a hand scanner
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 3</li><li>Operator manuals</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about the purpose of a hand scanner, installing a hand scanner, inspecting a hand scanner for wear, and cleaning the hand scanner.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator adjustments on display lettering composers
Knowledge you should have to perform this skill:	Define:      Compositors     Display type Recall how to:     Select fonts     Attribute characteristics to fonts     Size fonts     Inspect compositors for safety     Adjust exposure units on compositors     Develop text in compositors     Clean compositors and developing units
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 3 and 4</li> <li>DM Volume 3, Chapters 1, 5, and 8</li> <li>DM Volume 4, Chapter 1</li> <li>Operator manuals</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting font style, attributes of font styles, sizing headlines, positioning headlines, emphasizing type, loading fonts into compositors, checking chemistry, changing chemistry, adjusting exposure and developing units, cleaning compositors, and cleaning periodicities.

General DM Skill Area	Graphics equipment maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and perform operator checks and adjustments on airbrushes
Knowledge you should have to perform this skill:	Define:  Single-action airbrush Double-action airbrush Oscillating airbrush Recall how to: Disassemble and reassemble an airbrush Inspect an airbrush needle Install a color up or bottle Clean airbrushes and color cups or bottles Install an air-hose Adjust the spray pattern Adjust air flow Adjust paint flow Troubleshoot irregular spray patterns
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 7
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting an airbrush to fit requirements, disassembling the airbrush, inspecting internal parts, reassembling the airbrush, connecting the airbrush to a hose, connecting a color cup or bottle, adjusting the spray pattern, adjusting air flow and paint flow, and cleaning the airbrush.

#### Part 3

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create animations for television (TV) and video presentations
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Cartooning</li> <li>Caricatures</li> <li>Animation</li> <li>Claymation</li> <li>Cels</li> <li>Model sheets</li> <li>Recall how to:</li> <li>Layout the height to width ratio of television cards</li> <li>Draw cartoons and caricatures</li> <li>Place props in backgrounds</li> <li>Built a model sheet for a character</li> <li>Calculate frames per second for a range of motion</li> <li>Storyboard an animated feature</li> <li>Develop a cel</li> <li>Paint cels</li> <li>Use basic drawing and drafting tools</li> <li>Use specially formulated cel paint</li> <li>Use claymation techniques for animation</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapters 2, 4, and 5</li> <li>DM Volume 3, Chapters 1, 2, and 4</li> <li>DM Volume 4, Chapter 3</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about developing characters and model sheets, developing a storyboard, calculating fps and range of motion requirements, setting spacing guidelines, laying out ratios for television cards, creating television cards, creating cels, painting cels, sequencing cels, and using claymation.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Create TV graphics
Knowledge you should have to perform this skill:	Define:  Scanning area Essential area Safe title area Border area Aspect ratio Studio cards Recall how to: Use basic drafting and drawing tools Layout the aspect ratio Determine the safe title area Prepare standard, plain title, illustrated, and super title studio cards Use disclosure devices Pan cards Tilt cards Use a crawl device Create a storyboard Use a script
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 2</li> <li>DM Volume 2, Chapter 1</li> <li>DM Volume 3, Chapters 1 through 7</li> <li>DM Volume 4, Chapter 3</li> </ul>

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about using a script as a blueprint to create a storyboard, using basic drawing and drafting tools, color transmission and predictable tonal limitations, laying out the aspect ratio, determining scanning area, safe title or essential area, and boarder area, creating standard, plain title, illustrated, and super title studio cards, using disclosure devices, drop-in/drop-out devices, crawl devices, and panning and tilting the video cameras.

General DM Skill Area	Visual information products
A <i>skill</i> you are expected to perform from the General Skill Area above:	Catalog and store displays and exhibits
Knowledge you should have to perform this skill:	<ul> <li>Define:</li> <li>Displays</li> <li>Exhibits</li> <li>Recall how to:</li> <li>Determine the need for a display or exhibit</li> <li>Evaluate a location for a display or exhibit</li> <li>Identify a target audience for displays and exhibits</li> <li>Hang display or exhibit items</li> <li>Catalog and mark display and exhibit items</li> <li>Store display and exhibit items</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	DM Volume 4, Chapter 4
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about evaluating the need for a display or exhibit, finding a suitable location, safeguarding display or exhibit items, identifying a target audience and calculating impact, hanging display and exhibit items, cataloging information, marking items, and storing display and exhibit items.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Proofread composed text copy
Knowledge you should have to perform this skill:	Define:  Proofreader's marks Editor's marks Manuscript Copy Recall how to: Evaluate image contrast Determine line resolution Read carefully Place proofreader's and editor's marks on copy Sequence multiple errors Mark cold-type proofs Do a preliminary review Do a text review Do a margin and indentation review
References you should study to gain the knowledge you need to perform this skill:	DM Volume 4, Chapter 1

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about using proofreader's and editor's marks, placing marks on copy and cold-type proofs, sequencing multiple errors, conducting a preliminary review to check sequence, artwork availability, cover stock, classification, and distribution statement, conducting a text review to indicate type styles and sizes, key art, italicize, bold, and mark headings, legends, and display lines, and conducting a margin and indentation review to verify and mark paragraphs and unusual indentations and to set tables.

General DM Skill Area	Copy preparations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare multi-page spreads
Knowledge you should have to perform this skill:	Define signatures Recall how to:      Use basic drawing and drafting tools     Layout pages     Determine press limitations and capabilities     Layout a signature
References you should study to gain the knowledge you need to perform this skill:	DM Volume 4, Chapter 1
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about selecting a format to fit press capabilities, determining economical page size, and laying out multi-page spreads.

General DM Skill Area	Graphics management	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Compile and file audiovisual presentation reports	
Knowledge you should have to perform this skill:	Recall how to:  • Extract information from the job log  • Extract information from job orders  • Complete audiovisual and visual information reports	
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>DPSINST 5603.1</li> <li>OPNAVINST 5290.1A</li> <li>SECNAVINST 5290.1</li> </ul>	
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about where to find information required on audiovisual and visual information reports, the effects of inaccurate or missing information, and how to incorporate required information into daily logging procedures and job orders.	

General DM Skill Area	Graphics management	
A <i>skill</i> you are expected to perform from the General Skill Area above:	Review work requests for compliance with copyright and reproduction regulations	
Knowledge you should have to perform this skill:	<ul> <li>Recall how to:</li> <li>Identify copyrighted material</li> <li>Mark copyrighted material</li> <li>Obtain permission to use copyrighted materials</li> <li>Conduct quality checks on materials for subsequent reproduction</li> <li>Evaluate images for density and contrast</li> <li>Obtain ceremonial stationary and invitations</li> <li>Locate preprinted signage and printed materials</li> </ul>	
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>JCP No. 26</li> <li>NAVPUBINST P-2002</li> <li>NAVPUBINST 5600.44</li> <li>SECNAVINST 5210.11</li> <li>SECNAVINST 5215.1</li> <li>SECNAVINST 5603.2</li> <li>SECNAVINST 5870.6</li> <li>SECNAVINST 5870.6</li> </ul>	

Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:

Expect questions about identifying copyrighted material, requesting permission for using copyrighted material, attributing copyrights, the nature of copyrights, what copyrights protect, procedures in the case of a suspected copyright infringement or allegations, recognizing forms, directives, and signage that exist in the system, and ordering preprinted ceremonial stock.

General DM Skill Area	Computer fundamentals
A <i>skill</i> you are expected to perform from the General Skill Area above:	Insert index references, headers, and footnotes
Knowledge you should have to perform this skill:	Recall how to access documents and set or make changes to indices, references, headers, and footers
References you should study to gain the knowledge you need to perform this skill:	DM Volume 3, Chapter 8
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about searching directories, using a wild card, accessing files and documents, editing documents, and changing indices, references, headers, footers, and footnotes.

#### Part 4

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct joint congressional print (JCP) inventories
Knowledge you should have to perform this skill:	Recall how to inspect and evaluate equipment for serviceability
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 1</li><li>DPSINST 5603.1</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about expected useful life of equipment, considerations for buying new equipment, equipment that requires JCP approval, frequency of inspections, reporting requirement, and the impact of reports.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Make entries in reprographics production logs
Knowledge you should have to perform this skill:	Recall how to establish and maintain a reprographics production log and the type of information it requires.
References you should study to gain the knowledge you need to perform this skill:	<ul> <li>DM Volume 1, Chapter 1</li> <li>NAVPUBINST 5600.44</li> </ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about establishing a reprographics production log, the type of information required in the log, how to evaluate jobs for man hours and materials expended, controlling reprographics and copier abuse, reduce and eliminate wastes, and when to make a copier log entry or a job order.

General DM Skill Area	Graphics management
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare JCP forms 1 and 5
Knowledge you should have to perform this skill:	Recall how to extract information required by JCP and complete forms 1 and 5
References you should study to gain the knowledge you need to perform this skill:	<ul><li>DM Volume 1, Chapter 1</li><li>DPSINST 5603.1</li></ul>
Exam Expectations. These are subject areas you should know to help you answer exam questions correctly:	Expect questions about gathering information for JCP forms 1 and 5, incorporating required information into a daily job log and on job orders, and the consequences of failure to report or inaccurate reports.

# **Appendix 1**

#### References Used in This Advancement Handbook

Rating	Short Title	Long Title	Chapters	Stocking Point
DM3	DM Volume 1	Illustrator Draftsman	1,2,3,4,5	Note 1
	DM Volume 2	Volume 1, Equipment Illustrator Draftsman Volume 2, Standard Drafting Practices	1,2,3,4,5,6	Note 1
	DM Volume 3	Illustrator Draftsman Volume 3, Executionable Practices	1,2,3,4,5,6,7,	Note 1
	DM Volume 4	Illustrator Draftsman Volume 4, Presentation Graphics	1,2,3,4	Note 1
	DODINST 4000.19	Interservice, Interdepartmental, and Interagency Support	All	Note 3
	DPSINST 5603.1	Preparation and Submission of JCP Forms 1, 5, and 6	All	Note 1
	JCP NO. 26 S PUB 101-9	Government Printing and Binding Regulations	All	Note 4
	NAVPUBINST 5600.44	Reprographics Management Program	All	Note 1
	NAVPUBINST P-2002	Navy Stocklist of Publications and Forms	All	Note 5
	NAVSEAINST 4570-3	Precious Metals Recovery Program (PMRP)	All	Note 1
	OPNAVINST 5239.1	Department of the Navy Automated Data Processing (ADP) Security Manual	All	Note 6

	OPNAVINST 5290.1A	Naval Imaging Program (NAVIMP) Policy and Responsibilities	All	Note 6
	SECNAVINST 5210.11	Department of the Navy, Standard Subjects Identification Codes	All	Note 6
	SECNAVINST 5213.10	Department of the Navy, Forms Management Program	All	Note 6
	SECNAVINST 5215.1	Department of the Navy, Directives Issuance System	All	Note 6
	SECNAVINST 5290.1	Naval Imaging Program	All	Note 6
	SECNAVINST 5510.30A	Department of the Navy Personnel Security Program	All	Note 6
	SECNAVINST 5510.36	Department of the Navy (DON) Information Security Program (ISP) Regulation	All	Note 6
	SECNAVINST 5603.2	Printed Matter for Official Ceremonies	All	Note 6
	SECNAVINST 5870.5	Permission to Copy Materials Subject to Copyright	All	Note 6
	SECNAVINST 5870.6	Copyright in Works of Authorship Prepared by Department of the Navy Personnel	All	Note 6
You are following	responsible for all refereg:	ence material at the p	revious pa	ygrade, plus the
DM2	OPNAVINST 5239.1	Department of the Navy Automated Data Processing (ADP) Security Manual	All	Note 6
	SECNAVINST 5215.1	Department of the Navy, Directives Issuance System	All	Note 6

SECNAVINST 5290.1	Naval Imaging	All	Note 6
	Program		
BUPERSINST 1610.10	Navy Performance	All	Note 2
	Evaluation (EVAL)		
	and Counseling		
	System		

# You are responsible for all reference material at the previous paygrades, plus the following:

DM1	SECNAVINST 5216.5	Navy Correspondence	All	Note 6
		Manual		
	SECNAVINST 5500.4	Department of the	All	Note 6
		Navy, Reporting of		
		Missing, Lost, Stolen,		
		or Recovered		
		Government Property		

#### You are responsible for all reference material at the previous paygrades.

**DMC** There are no additional references.

#### LEGEND:

Note 1 - To order, MILSTRIP to NAVICP PHILA (Stock number from NAVSUP P-2002) or via INTERNET <a href="http://www.nll.navsup.navy.mil">http://www.nll.navsup.navy.mil</a>

Note 2 - INTERNET - <a href="http://www.bupers.navy.mil">http://www.bupers.navy.mil</a>

 $Note \ 3-INTERNET-\underline{http://web7.whs.osd.mil/corres.htm}$ 

Note 4 – Purchase from Government Printing Office

 $Note \ 5 - INTERNET - \underline{http://www.navsup.navy.mil}$ 

 $Note\ 6\ --INTERNET-\underline{http://neds.nebt.daps.mil}$